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United States Department of Agriculture
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✓ DETERMINING THE CATCH OF CIGARETTE BEETLES
IN SUCTION-LIGHT TRAPS IN CIGAR FACTORIES
OR CIGAR-TOBACCO STORAGES X

By Joseph N. Tenhet and C. O. Bare
Division of Truck Crop and Garden Insect Investigations ^{1/}

The suction-light insect trap, described by Reed et al. (1), has been used for more than 15 years for determining the abundance of cigarette beetles (Lasioderma serricorne (F.)) and tobacco moths (Ephestia elutella (Hbn.)) in tobacco warehouses and factories. In warehouses and factories handling cigarette tobacco, both these insects are usually present. Methods for determining the numbers of these insects caught in the trap have been described by Brubaker and Pollard (2). In cigar factories and storages for cigar tobacco, however, the cigarette beetle is usually the only insect pest of economic importance. Two simple methods may be employed for determining the number of cigarette beetles caught in such buildings. A brief description of these methods is given in this paper.

Apparatus

Before the number of the insects can be determined, they must be killed or anesthetized. This is most readily done by suspending a ball of absorbent cotton saturated with chloroform, carbon tetrachloride, or ether in the covered glass jar in which the insects are caught (fig. 1). A suitable ball, 1 to 1 1/2 inches in diameter, can be made by winding thread or fine cord about a small piece of absorbent cotton to make it fairly firm. A piece of cord 8 or 10 inches long should be left fastened to the ball to facilitate handling.

Many species of insects are caught in a suction-light trap, and it is necessary to separate the cigarette beetles from the others. This can be easily done by use of sieves. Two sieves are usually sufficient--one with approximately 12 or 14 meshes per inch and the other with

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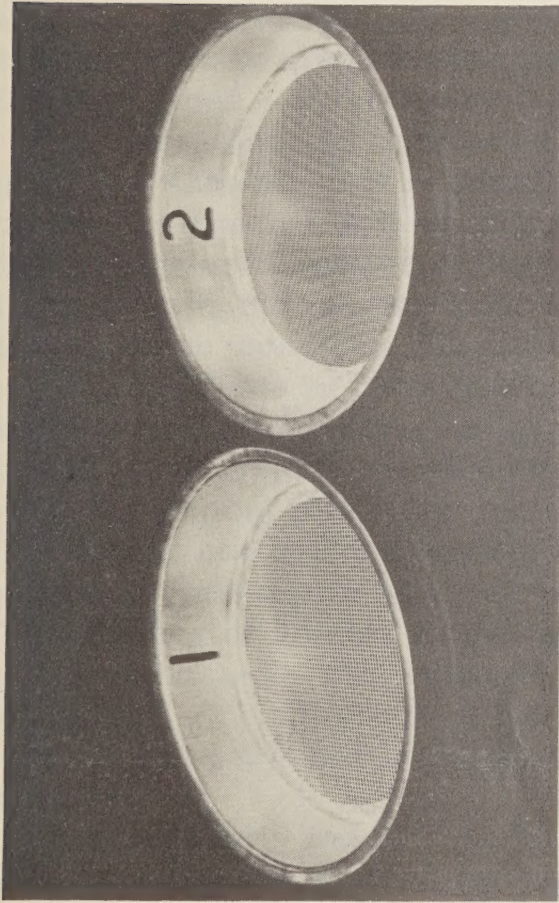


Figure 2. --Sieves used for separating cigarette beetles from other insects caught in suction-light traps.

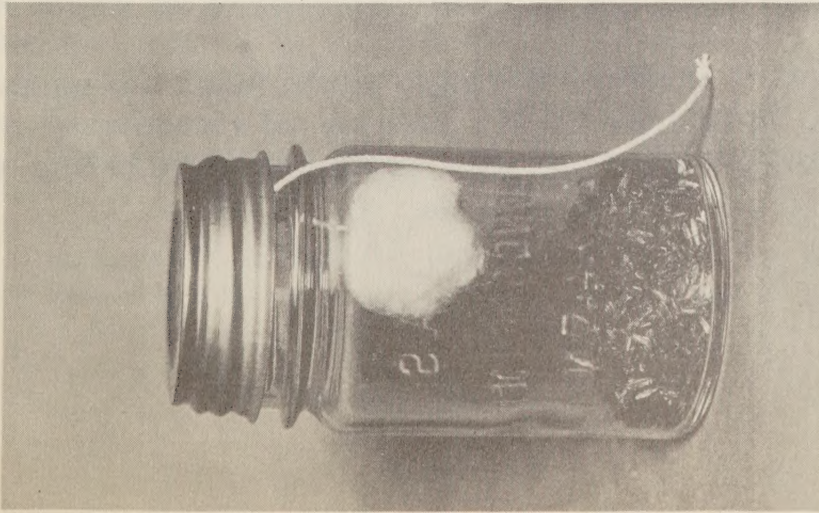


Figure 1. --Apparatus for anesthetizing or killing insects caught in a suction-light trap.

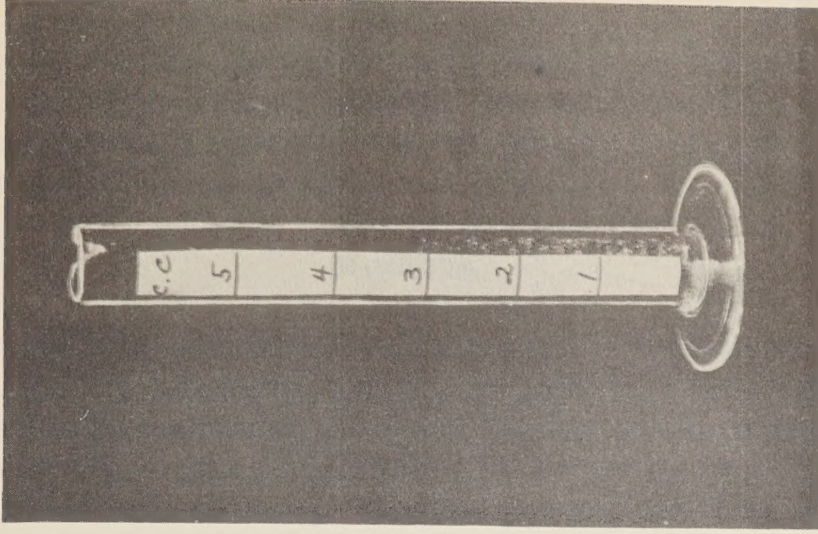


Figure 3. --Graduate used in measuring quantities of cigarette beetles caught.

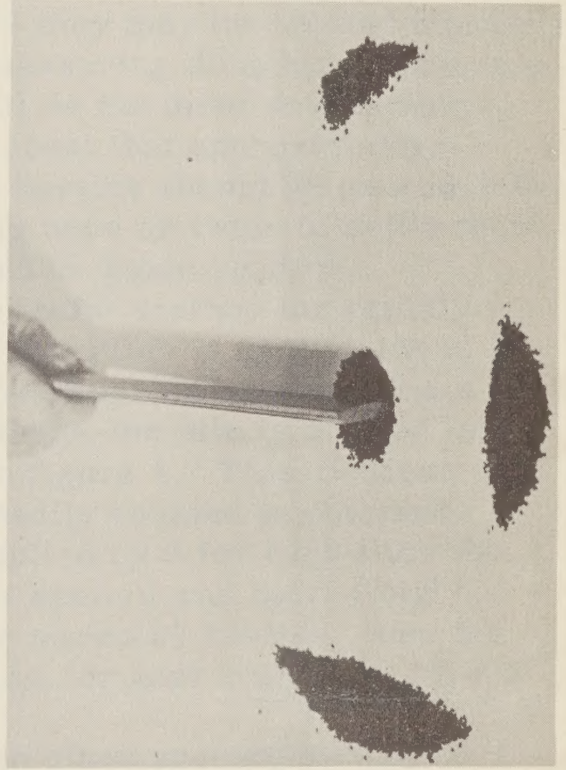


Figure 4. --Determining the number of cigarette beetles by halving the catch.

20 meshes per inch (fig. 2). The first sieve screens out house flies, mosquitoes, and other larger insects, but permits the cigarette beetle to pass through. The second sieve retains the cigarette beetle but permits passage of fine dust and trash.

Methods

The suction-light trap should be operated continuously (24 hours a day), and the catch determined at 7-day intervals or less. When the cigarette beetles are abundant, it may be desirable to make daily determinations. The glass jar should be removed from the trap, a cover screwed on immediately, and the jar replaced by a clean one.

The ball of cotton saturated with the anesthetic should be suspended for 10 to 15 minutes in the jar containing the insects. After the cigarette beetles have been separated out by use of the sieves, the number present is determined. If there are fewer than 100 they may be counted manually.

If more than 100 beetles are caught, measuring them by volume in a graduate showing cubic centimeters (fig. 3) is the most satisfactory method, since it has been found by actual count that approximately 1,000 cigarette beetles occupy 3 cc. The beetles should be poured into the graduate and the graduate tapped lightly once or twice to settle them to a uniform density. An estimate can then be made readily.

If a graduate is not available, another useful method for rapidly estimating the number of a large quantity of beetles is by division of the catch. The insects are placed on a sheet of paper and arranged in a uniform conical pile. By use of a straightedge the pile is divided into halves and one half discarded, as shown in figure 4. This process is repeated until a pile small enough to be readily counted is obtained. The number of beetles in this pile is multiplied by 2 for each time the pile was halved. For example, if a pile of beetles was halved eight times and a count of one of the final halves shows 57 beetles, then the total catch is 57 multiplied by 2 eight times, or approximately 14,592 beetles.

Occasionally the trap catch may contain other species of approximately the same size as the cigarette beetle, which cannot be separated from this beetle by screening. In such a contingency it is necessary to measure the entire lot of insects, then mix them thoroughly and count a small sample.

After making the count of the cigarette beetles, it is important to destroy them, preferably by burning. If not destroyed, some of them may recover and reinfest the factory or storage warehouse.

Literature Cited

- (1) Reed, W. D., Morrill, A. W., Jr., and Livingston, E. M.
1935. Trapping experiments for the control of the cigarette beetle. U.S. Dept. Agr. Cir. 356, 13 pp., illus.
- (2) Brubaker, R. W., and Pollard, H. N.
1941. Determining the catches of cigarette beetles and tobacco moths made in insect traps. U.S. Bur. Ent. and Plant Quar. Cir. ET-186, 4 pp., illus. [Processed.]

